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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,674	11/15/2001	Dennis W. Davis	42-135	7525

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EXAMINER

PHAN, HANH

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/987,674	<b>Applicant(s)</b> DAVIS ET AL.	
	<b>Examiner</b> Hanh Phan	<b>Art Unit</b> 2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-20 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 12/16/2005.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-7, 14 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokumitsu (US Patent No. 5,227,906).

Regarding claims 1 and 14, referring to Figure 19, Tokumitsu discloses a system for testing a wireless network of transceivers, comprising:

an optical modulator, adapted to modulate optical energy (i.e., light sources 243-1 to 243-4, Fig. 19) with signal energy (i.e., input signals 242-1 to 242-4, Fig. 19) propagating from a first group of the transceivers of the network to form a vector of optical signals (col. 14, lines 21-67 and col. 15, lines 1-56);

an optical matrix-vector multiplier (MVM)(i.e., shutter array 245, Fig. 19) adapted to receive the vector of optical signals, and having a matrix of optical channel weights which are modifiable in accordance with desired parameters to simulate at least one parameter of the wireless network, the optical MVM (i.e., shutter array 245, Fig. 19) being further adapted to output signals based on the received vector of optical signals and the optical channel weights (col. 14, lines 21-67 and col. 15, lines 1-56); and

a detector device (i.e., detector array 247-1 to 247-4, Fig. 19) adapted to detect the output signals and to provide the output signals as an output vector of signals to a second group of transceivers of the network (col. 14, lines 21-67 and col. 15, lines 1-56).

Regarding claims 5 and 18, Tokumitsu further teaches the matrix of optical channel weights is replicated in order to provide a reciprocal transmission path between each the transceiver of the network, and to increase the dimension of the input and output vectors to represent transceivers for the reciprocal transmission paths, to enable full duplex communication simulation of the network (Fig. 19, col. 14, lines 21-67 and col. 15, lines 1-56).

Regarding claims 6 and 19, Tokumitsu further teaches the optical modulator includes a plurality of optical detectors, each adapted to receive respective the signal energy from a respective one of the transceivers in the first group (Fig. 19, col. 14, lines 21-67 and col. 15, lines 1-56).

Regarding claims 7 and 20, Tokumitsu further teaches the detector device includes a plurality of detectors, each adapted to receive a respective the output signal (Fig. 19, col. 14, lines 21-67 and col. 15, lines 1-56).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokumitsu (US Patent No. 5,227,906) in view of Sampsell et al (US Patent No. 5,037,173).

Regarding claims 2 and 15, Tokumitsu teaches all the aspects of the claimed invention except fails to teach the detector device includes an amplifier device adapted to amplify the output signals to create the output vector of signals. However, Sampsell in US Patent No. 5,037,173 teaches the detector device (i.e., digital receiver, Fig. 2) includes an amplifier device (i.e., low noise amplifier, Fig. 2) adapted to amplify the output signals to create the output vector of signals (Figs. 1b and 2, col. 4, lines 19-43). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the detector device includes an amplifier device as taught by Sampsell in the system of Tokumitsu. One of ordinary skill in the art would have been motivated to do this since Sampsell suggests in column 4, lines 19-43 that using such the detector device includes an amplifier device have advantage of allowing amplifying the power level of signal to a desired level.

6. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokumitsu (US Patent No. 5,227,906) in view of Steinberg et al (Pub. No.: US 2002/0089720).

Regarding claims 3 and 16, Tokumitsu teaches all the aspects of the claimed invention except fails to teach the signal energy includes radio frequency (RF) signal

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energy and the output signals include RF signals. However, Steinberg teaches the signal energy includes radio frequency (RF) signal energy and the output signals include RF signals (page 1, paragraph [0011]-[0013] and page 2, paragraph [0014]-[0020]). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the signal energy includes radio frequency (RF) signal energy and the output signals include RF signals as taught by Steinberg in the system of Tokumitsu. One of ordinary skill in the art would have been motivated to do this since Steinberg suggests in page 1, paragraph [0011]-[0013] and page 2, paragraph [0014]-[0020] that using such the signal energy includes radio frequency (RF) signal energy and the output signals include RF signals have advantage of allowing providing an optical communication system with high bandwidth and high capacity.

7. Claims 4, 10-13, 17 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokumitsu (US Patent No. 5,227,906) in view of Lang et al (US Patent No. 5,325,224).

Regarding claims 4 and 17, Tokumitsu teaches all the aspects of the claimed invention except fails to teach the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths, to enable full duplex communication simulation of the network. However, Lang in US Patent No. 5,325,224 teaches the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths to enable full duplex communication simulation of the

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network (Fig. 4, see from col. 4, line 20 to col. 7, line 20). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths to enable full duplex communication simulation of the network as taught by Lang in the system of Tokumitsu. One of ordinary skill in the art would have been motivated to do this since Lang suggests in column 4, line 20 to col. 7, line 20 that using such the optical modulator is adapted to modulate the optical energy at a plurality of different optical wavelengths have advantage of allowing reducing the interference between the signals.

Regarding claims 10 and 23, the combination of Tokumitsu and Lang teaches further comprising: a first lens system adapted to direct the vector of optical signals onto the optical MVM (Fig. 4 of Lang).

Regarding claims 11 and 24, the combination of Tokumitsu and Lang teaches the first lens system is adapted to direct each respective component of the vector of optical signals onto a respective row of the optical channel weights of said optical MVM (Fig. 19 of Tokumitsu and Fig. 4 of Lang).

Regarding claims 12, 13, 25 and 26, the combination of Tokumitsu and Lang teaches further comprising: a second lens system adapted to direct the output signals from the optical MVM onto the detector device (Fig. 4 of Lang).

***Allowable Subject Matter***

8. Claims 8, 9, 21 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***


9. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**